



## Challenge '08

Following up on the success of Challenge '06, a new challenge for 2008 was posed for the Red and Blue teams at MTI. Unlike Challenge '06, this year the teams were very short on time, due to production volumes. This led to a simpler challenge, based on the hardware from the previous challenge and no more than one 1-hour team meeting per week.

This year's challenge required that the teams formulate a way to use a mobile robot to catch "fish" from a "pond" and transfer them to a "basket." No actual fish were harmed for this project, despite a brief visit from someone representing himself as the "Gorton's Fisherman" (the trademark of an American frozen food company specializing in fish sticks.)

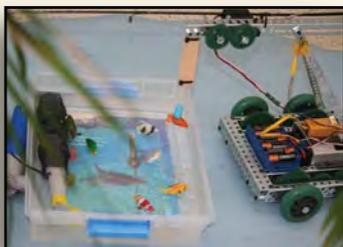
Extra points would be available for the robot acting autonomously, and for catching "swimming" fish. There were also size limitations on the fish, and the "pond" could be stocked with no more than 10 fish; fish were not to exceed 6 inches in length or 2 inches in width or height.



The fishing hole.

One point would be awarded for each stationary fish caught, two points for each "swimming" fish caught and an additional point for successfully placing the fish in the "basket." The fishing expedition could not take more than 20 minutes to complete.

In both cases, the teams opted for radio-controlled robots, since the time to develop their robots was extremely limited. The magnitude and complexity of autonomous programming precluded that option due to time constraints. Both teams independently decided to use similar schemes for their "catch and release" fishing. Fish with metallic parts were selected to be caught with magnets. In



The Blue team robot in action.



Winning team (clockwise): Diane, Bonnie, Lyn, Austin, Kevin and Ted (captain).

one case, the "fish" were rubber fishing lures with steel hooks, in the other, magnetic aquarium fish. In order to release the caught fish, both teams used a line run through an outer tube, retracting the line into the tube to push the fish off the magnetic hook.

The initial portion of the competition was a PowerPoint presentation to the judges and audience. This presentation was to be scored on creativity, ingenuity and the presentation itself, which was limited to no more than 15 minutes.

The Red team led off with their presentation, outlining their thinking in defining and then proposing solutions for the problem at hand. The Blue team followed: it became immediately apparent that the Blue team had figured a way of "moving" their fish by using a pump in their pond.

All were anxious to see how well the actual robots would perform.

We moved to the "pond" and each team took turns to transfer their fish from one pond to the other. Amidst cheers and jeers, while each team played fishing songs in the background, all of the fish were caught!



Christopher (Red Team), as the Gorton's Fisherman, takes their robot fishing.



Award presentation: Paul, Ted and Tom.



Adventure Day at the National Aquarium.

While the judges debated, more food from the picnic was consumed. The judges were unanimous: The Blue team was the winner! They really enjoyed their prize: a day at the National Aquarium in Baltimore and lunch at the Inner Harbor.

Everyone had fun and hope to come back in 2 years for Challenge '10. Judging by the great feedback we got from our readers for Challenge '06, we'll make sure to share our next challenge with you.



Judges for Challenge '08: Jonathan, Kathy and Joan.

### Personal Note from Joan:

*I'm always happy to have an excuse to spend some time at MTI. An event like this gives me a chance to put my engineering hat on for a little while and think like an engineer rather than a software geek. Chris and Paul are both very creative, and find ways to foster creativity in the people around them; this is one of the ways they achieve this, and share the experience with other people around them, like their web developer and graphic designer, bankers and insurance people. We all have a great time. I can't wait for the holiday party in December!*